FCC Technical Regulations for Emergency Locator Transmitters (ELTs) & Personal Locator Beacons (PLBs)

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Wireless Telecommunications Bureau
Mobility Division

FCC Equipment Authorization

- FCC authorizes equipment using the radio frequency spectrum.
- Equipment is authorized by a Certification issued by the FCC Lab or by a designated Telecommunications Certification Body (TCB) based on representations and test data submitted by the applicant.
- Devices may not be manufactured, imported and/or marketed until they have shown compliance with the technical standards which have been specified by the Commission.

Types of Authorizations

Depending upon the type of device, the following authorization is required:

- Certification through the FCC
- Certification through a TCB
- Certification through either FCC or TCB
- Verification – no filing required
- Declaration of Conformity – no filing required

FCC Rules Governing Radiobeacons

The FCC Lab or TCBs can authorize Radiobeacons, including:

- Emergency Position Indicating Radiobeacons (EPIRBs), see 47 C.F.R. Part 80 for marine.
- Emergency Locator Transmitters (ELTs), see 47 C.F.R Part 87 for aviation.
- and Personal Locator Beacons (PLBs), see 47 C.F.R. Part 95 for personal radio services.

Search and Rescue (SAR) Frequencies used by Radiobeacons

- 121.5 MHz
- 406 to 406.1 MHz Band - Rules allow equipment authorization anywhere within this band

Discontinuance of 121.5 MHz

- On February 1, 2009, Cospas-Sarsat terminated satellite processing of distress signals from 121.5/243 MHz emergency beacons and switched to 406-406.1 MHz Band.
- On March 27, 2002, FCC prohibited the continued use of 121.5 MHz EPIRBs on U.S.-registered vessels.
- On June 15, 2010, in WT Docket No. 01-289 the FCC adopted rules to prohibit the continued use of 121.5 MHz ELTs.
- On January 11, 2011, in response to comments from interested parties the FCC released an *Order* that stayed implementing these rules and allowed 121.5 MHz ELTs to continue to be manufactured, imported, sold and used.
- FCC anticipates a *Third Further Notice of Proposed Rule Making* to seek comment on issues regarding the use of 121.5 MHz ELTs.

Requirements 121.5 MHz ELTs must comply with:

- The frequency stability requirements of 87.133.
- The emission limitations of 87.139(h).
- The modulation requirements of 87.141(i).
- Testing requirements of Section 87.197 – ELT Test Procedures.

Requirements 406 MHz ELT must comply with:

- FAA Standard TSO – C126A for 406 ELTs.
- Radio Technical Commission for Aeronautics document titled “Minimum Operational Performance Standards 406 MHz Emergency Locator Transmitters (ELT)” Document No. RTCA/DO–204 dated September 29, 1989.
- COSPAS – SARSAT 406 MHz Distress Beacon Type Approval Standard (C/S T.007).

406 MHz ELT Approval Letter and Exhibits

- FAA Approval is needed.

  Section 87.147(d) requires applicant to obtain FAA letter of acceptance of equipment.

- COSPAS – SARSAT Certificate from an approved test facility is required.

Example of COSPAS-SARSAT Certificate of Approval

COSPAS SARSAT

COSPAS-SARSAT
TYPE APPROVAL CERTIFICATE
For a 406 Megahertz Distress Beacon
for use with the Cospas-Sarsat Satellite System

WHEREAS, ***Jotron Electronics a.s.***, of ***Tjodalyng, Norway***, the manufacturer of a 406 Megahertz Distress Beacon packaged as an ***EPIRB***, and identified as Model: ***TRON 40 GPS*** has submitted test data and had said beacon tested in ***October 2000*** at a facility accepted by Cospas-Sarsat at ***Intespace, Toulouse, France***, to demonstrate that said beacon meets the applicable technical requirements for use with the Cospas-Sarsat Satellite System, as defined in documents C/S T.001", Issue 3 - Rev. 3, October 1999, and C/S T.007 "Cospas-Sarsat 406 MHz Distress Beacon Type Approval Standard", Issue 3 - Rev. 6 October 1999,*
for frequency channel ***406.025*** MHz;

WHEREAS, the Cospas-Sarsat Council has determined, following a review of the test results, that the said beacon meets the Cospas-Sarsat Class 2 requirements and is rated for operating over the temperature range of ***-20 °C to +55 °C,*****
with battery:

Saft
Lithium Thionyl Chloride ($LiSOCL_2$, 4 D-cells LSH20) and

WHEREAS, said manufacturer has certified that all other units of the same type will meet said technical requirements in a similar manner to the unit subjected to test, which incorporated the following features:

- ***121.5 MHz Auxiliary radio locating device (20 dBm ±3dB, continuous)***
- ***Internal navigation device (GPS):*** *manufacturer:* ***Connexant***
  model: ***Jupiter LP***
- ***Automatic activation***
- ***Strobe light (0.85 cd, 21 flashes/min)***
- ***Self-test mode (one burst: 520 ms, format flag bit = "1", long message;***
  440 ms, format flag bit = "0", short message)

* *beacon is approved for use with standard location protocol, short standard location protocol and user-location protocol*
** *specified operating lifetime 48 hours*

NOW, THEREFORE, in reliance upon the following, the Cospas-Sarsat Council does hereby certify that the 406 MHz Distress Beacon Model identified herein is compatible with the Cospas-Sarsat System as of the date of this Certificate.

Certificate No: ***122***

Date: ***8 November 2000***

Signed by:

D. Levesque
Head of Cospas-Sarsat Secretariat

NOTE, HOWEVER:

1. This certificate does not authorize the operation or sale of any 406 MHz distress beacon. Such authorization may require type acceptance by national administrations in countries where the beacon will be distributed, and may also be subject to national licensing requirements.

2. This certificate is intended only as a formal notification to the above identified manufacturer that the Cospas-Sarsat Council has determined, on the basis of test data of a beacon submitted by the manufacturer, that 406 MHz distress beacons of the type identified herein meet the standards for use with the Cospas-Sarsat System. This certificate is not a warranty and Cospas-Sarsat hereby expressly disclaims any and all liability arising out of or in connection with the issuance, use, or misuse of this certificate.

3. This certificate is subject to revocation by the Cospas-Sarsat Council should the beacon type for which it is issued cease to meet the Cospas-Sarsat specification. A new certificate may be issued after satisfactory corrective action has been taken and correct performance demonstrated in accordance with to the Cospas-Sarsat Type Approval Standard.

Requirements 406 MHz PLBs must comply with:

- Radio Technical Commission for Maritime Services document titled “RTCM Recommended Standards for 406 MHz Satellite Personal Locator Beacons (PLBs), Version 1.1, dated June 19, 2002.

- COSPAS – SARSAT 406 MHz Distress Beacon Type Approval Standard (C/S T.007).

406 MHz ELT/PLB Special Requirements

Section 87.199 for ELTs and 95.1402 for PLBs require:

- Unique identification code for each beacon,
- Mandatory registration of code by user with NOAA
- and labeling requirements to provide user with registration information.